

Chattanooga State Technical Community College

**Academic Profile– Performance Funding Exit Exam
Report Prepared by the Office of Institutional Research
June 2003**

The *Academic Profile* is a required general education test for all graduates. The *Academic Profile* focuses on the academic skills developed through general education courses rather than on the knowledge acquired about the subjects taught in these courses. It does this by testing college level reading, writing, critical thinking, and mathematics within the context of the humanities, social sciences, and natural sciences. Questions use stimulus material from the three academic areas to test the four skills. The emphasis is on measuring the skill; test takers are not expected to bring specific knowledge about content areas to the questions. All the subject knowledge required to determine the answer is contained in the question if the skill exists.

The *Academic Profile* score provides a summary of student scores on the test and a summary of student reported data from the answer sheet. Two kinds of scores are reported on the *Academic Profile*: norm-referenced scaled scores and criterion-referenced proficiency classifications. Norm-referenced scores on the Academic Profile derive their meaning from comparisons of one group of students to another. The total score is based on all the questions and ranges from 400 to 500. Subscores include critical thinking, college level reading, college level writing, and mathematics. Each skill subscore is based on one-fourth of the questions. The scales range from 100 to 130. However 115 on one subscale is not necessarily equal to 115 on another. Each subset stands alone. Three additional areas reported are humanities, social sciences, and natural sciences.

Area scores cannot be compared to each other, only to the referenced norms. These subscores do not test specific course content or specific subject matter knowledge. The questions assume that the student has studied in the social sciences but do not assume that the student has taken a course in any particular social science.

On the results tables at the end of this discussion, there are scores for each of the eight norm reference scores. CSTCC has used the Associate of Arts norms for comparison purposes. This group consists of 34 two-year schools across the United States and is provided by the Educational Testing Services. Table I includes scores for Spring 2001, Table II includes scores for Spring 2002 and Table III includes scores for Spring 2003. All tables include the normative information, total scores for the college, and scores by student major.

Research

The use of the *Academic Profile* for the first time in the 2000-2001 academic year raised a number of questions among both administration and faculty. The 2001 scores were lower than the national average. In addition, on the criterion referenced proficiency measures, 17% of the graduates were under Level I in writing, 26% in math, and 16% in reading. Extensive transcript review of these students did not give any indications of why some students scored higher and some lower. Grade point average did not necessarily correlate with total scores. Time in completing the degree, native or transfer student, or number of credit hours completed did not appear to be factors.

At that time, it was decided by a faculty committee and administration to study the test itself, the various types of students taking the test, and the test situation to determine if any of these factors appeared to affect the outcomes. These concerns were translated into the data collected during the 2001-02 and the 2002-03 testing and subsequent research.

Chattanooga State was interested in how well different types of students score on the Academic Profile. Since the test itself is one of general education, it was hypothesized that those students in the general transfer major would score higher than those students in the various career areas. The thinking behind this hypothesis is that transfer students take primarily general education courses and thus have accumulated almost double the number of credit hours in general education than career students. It was also thought that engineering technology, computer systems, and allied health students would score higher than those students in other career programs. The thinking behind this hypothesis was that these groups of students require a higher-level order of skills particularly in terms of critical thinking.

In 2001-02, a series of statistical analyses were undertaken. A one way analysis of variance was conducted on the total score and each of the seven additional subscores between student majors. Majors were coded directly from the Student Information System rather than using student reporting. Although the total score means by major range from 435.2 through 426.8, there is no statistically significant differences between either the total scores or the six of the subscales. Three majors score significantly higher on mathematics than do the other student majors. These are applied technology, physical therapy, and nursing. Applied technology only had only three graduates so that particular major may be a screwed sample. Table II contains a report of the mean scores for the entire college and by each major.

Statistical tests were also conducted to determine if there were differences in the eight mean scores and a number of demographic variables: career program versus transfer Major, gender, full time enrollment versus part time enrollment, number of hours worked by students, and age. There were no statistically significant differences between all career majors and the transfer majors using an independent t-test. The other variables were analyzed using an independent t-test. There was no significance difference between males and females, full time enrollment versus part time enrollment, or number of hours worked by students.

Age was the only variable which showed some differences between groups but not significantly across all groups. The youngest group (under age 19) and the oldest group (over 30) had significantly higher scores in social science. The age group of 20-22 was significantly lower than the other three groups. The youngest group performed highest on mathematics. Although there were statistically significant differences, no pattern or trend emerged where one could conclude that age makes a difference in performance.

Grade point average and total scores were viewed using correlation. It was thought that there should be a high correlation. However, there is no particular correlation between the two.

The last three variables analyzed were test session and length of time to complete test. These were thought of as motivational variables. A number of faculty felt the test results were invalid due to lack of student motivation. It was hypothesized that those students who took the test in one of the first testing sessions would score higher than those who waited to the last session. It was also hypothesized that if the program coordinator/director either gave the test or was present during the testing, the students would score higher. Lastly, it was thought that those students who finished the test before the required time would score lower. A one-way analysis of variance was used to test these questions. No statistically significant differences were found between the test groups, the presence or non-presence of faculty, or the finish times of the students taking the test.

An additional twelve survey questions were asked the students at the end of the testing sessions. These questions and their percentage responses to each choice are displayed in Table IV. The questions related to the students' attitude toward the college and the perceived reaction to the difficulty of the test questions. These questions were included to determine if the students might have negative attitudes about the college and thus not participate in the testing or if the exam was perceived as too difficult. In both cases, these premises did not hold true.

The questions concerning attitude toward the college received high agreement responses; 93% were satisfied with their educational experiences, 90% would enroll at CSTCC again, 87% felt they had developed a positive relationship with one or more faculty members, and 92% would recommend CSTCC to others. The lowest attitude question concerned practical skills for employment at 51%. However this may be due to about half the students being in non-career programs.

The students were asked how hard they tried on the exam and if they did their best work. Ninety percent agreed that they tried and 77% said they did their best work. They were also asked about the difficulty level of the questions; 82% reported the math was not too difficult, 86% the grammar, and 82% the reading.

In 2002-03, some of the same analyses were conducted. A t-test indicated that there are no statistical differences in the total scores or the subscores for race or for gender. A one way analysis of variance between divisions indicated that there are statistical differences between groups on natural science, reading and critical thinking subscores as well as the total score. Nursing students score lower on natural science, reading and total score than do the other groups.

The two social science programs (Early Childhood Education and Human Services Specialist) score lower than the other groups on natural sciences, reading, critical thinking as well as the total score.

A review, however, overall the past three years of scores for majors do not indicate any significant shifts in the scores. The overall total score has increased three points overall.

Conclusions and Results

The College developed a number of questions concerning the validity of the Academic Profile results in terms of differences among students, motivation and testing sequences, attitude toward the college, and perceived difficulty of the exam itself. A number of faculty and administration argued that the test was not taken seriously, that the students found it too difficult, that career students were at a disadvantage in terms of number of general education courses completed. In reality none of these arguments can be supported by the research.

The additional twelve survey questions were again asked at the end of the testing sessions. These questions and their percentage responses to each choice are displayed in Table IV. The questions related to the students' attitude toward the college and the perceived reaction to the difficulty of the test questions. The responses to these questions were very similar to the 2001-02 responses except for the question concerning reading level. In 2001-02, only 19% of the students agreed that the reading sections were above their comprehension level. In 2002-03, 90% felt the reading sections were above their comprehension level.

The review committee again determined that the Academic Profile appears to be a valid measure of general education for Chattanooga State graduates. This test group has a total score on the national mean. However, the results on the criterion referenced sections continue to be below an acceptable level. A significant number of students continue to score below proficiency in reading and critical thinking, mathematics, and writing.

The Director of Institutional Effectiveness reviewed the test itself and the scores to determine if programs could be implemented to help students do better on the exit exam. The information from this analyses was presented at the college wide Fall Convocation, each academic division, and other meetings across campus. A copy of the power point outline is included as documentation.

A Task Force within the mathematics division was formed to review the test itself, the testing situation, and the types of questions. This Task Force recommended seven activities that could be completed to improve test scores as well as six opportunities for math instructors to become involved. A second Task Force in English and critical thinking will complete a similar task in Fall, 2003. The Task Force report is attached as documentation.

A shorter "mock" test was developed by math and English instructors for use in classroom situations. This test was given to approximately 250 freshmen orientation students. The majority of these students had difficulty with the type of questions as well as the content. It is

the intent of this effort to compare these scores with exit exam scores in 2005 when a number of these students should graduate. It is also the intent of this activity to assist faculty to incorporate this kind of testing into course examinations throughout the curriculum. A copy of this examination is included in the documentation.

Each of these programs is described in the Self Study review and implementation in Standard 4.B and will be assessed in terms of effectiveness and outcomes. The overall assessment will be that the Chattanooga State graduated will score at a minimum at the level of the national norm score on the Academic Profile.

Table I
Academic Profile Scores by Department
Spring 2001

	National 2 Yr Avg	Total CSTCC N=564	All Health N=59	Nursing N=49	Business N=91	CompSci N=18	Child Ed N=18	EngTech N=39	HumanSvc N=18	Transfer N=256
Total Score	443	439.8	438.8	439.6	437.1	446	423.9	438	431.2	442
Humanities	114.3	113.9	113.1	114.8	113.1	115.5	108.7	112.2	111.3	114.8
Social Science	113.7	112	111.7	111.8	111.6	113.2	107.6	111.3	110.8	112.6
Natural Science	115.9	114.6	114.8	114.6	113.6	116.1	110.4	113.6	112.2	115.3
Reading	118.3	116.4	115.9	116.6	115.7	118	111.1	115.2	113.7	117.3
Writing	115	114.2	114.2	114	113.8	115.3	109.2	112.8	112.6	114.8
Critical Thinking	110.8	109.9	109.4	110.6	108.8	111.6	106.3	109.1	108	110.6
Math	113.2	112	111.9	111.3	111.1	114.6	108.1	113.3	108.6	112.4
Writing- Under I	Not Available	17%	19%	8%	22%	8%	39%	18%	39%	13%
Writing- Level I	Not Available	56%	51%	59%	55%	50%	44%	54%	44%	48%
Writing- Level II	Not Available	16%	27%	29%	20%	35%	5%	20%	17%	31%

Writing- Level III	Not Available	4%	0%	2%	3%	3%	0%	5%	0%	6%
Reversals	Not Available	8%	3%	2%	0%	3%	11%	3%	0%	2%
Math- Under I	Not Available	26%	14%	14%	21%	11%	50%	18%	22%	14%
Math – Level I	Not Available	48%	61%	67%	52%	44%	44%	56%	44%	57%
Math – Level II	Not Available	18%	17%	14%	13%	24%	0%	13%	17%	17%
Math – Level III	Not Available	4%	3%	0%	5%	6%	0%	3%	0%	4%
Reversals	Not Available	4%	5%	4%	9%	15%	6%	10%	17%	8%
Reading- Under I	Not Available	16%	19%	29%	18%	18%	50%	20%	56%	26%
Reading- Level I	Not Available	51%	58%	69%	32%	32%	50%	51%	33%	44%
Reading- Level I	Not Available	27%	17%	6%	41%	41%	0%	15%	6%	23%
Reading- Level I	Not Available	4%	2%	0%	6%	6%	0%	8%	0%	5%
Reversals	Not Available	2%	5%	4%	3%	3%	0%	5%	5%	3%

Table II
Academic Profile Scores by Department
Spring 2002

[illegible]

Writing- Under I	Not Available	23.1	25	66.7	46.2	33.3	17.2	28.6	31.8	27	5
Writing – Level I	Not Available	59.8	62.5	33.3	53.8	33.3	58.6	57.1	45.5	62.2	90
Writing– Level II	Not Available	13.5	12.5			33.3	17.2	14.3	13.6	5.4	
Writing– Level III	Not Available	3.6					6.9		9.1	5.4	5
		%	%	%	%	%	%	%	%	%	%
Math- Under I	Not Available	38.3	37.5	33.3	61.5	100	37.9	50	30.4	44.4	30
Math – Level I	Not Available	41.6	12.5	33.3	23.3		41.4	42.9	56.5	47.2	50
Math – Level II	Not Available	17	50		15.4		13.8	7.1	4.3	8.3	20
Math – Level III	Not Available	3.1		33.3			6.9		8.7		

[illegible]

Writing- Under I	Not Available	23.1	23.5	18.6	14.3	40	29.4	10	28.6	23.8
Writing – Level I	Not Available	59.8	52.9	54.3	57.1	60	58.8	60	50	61.7
Writing– Level II	Not Available	13.5	23.5	21.4	28.6		5.9	30	21.4	11.7
Writing– Level III	Not Available	3.6		5.7			5.9			2.8
		%	%	%	%	%	%	%	%	%
Math- Under I	Not Available	38.3	35.3	33.3	14.3		41.2	19	42.9	40
Math – Level I	Not Available	41.6	29.4	43.5	28.6	40	52.9	57.1	57.1	39.3
Math – Level II	Not Available	17	35.3	17.4	42.9	40	5.9	23.8		18.2
Math – Level III	Not Available	3.1		5.8	14.3	20				2.5

Table III
Academic Profile Scores by Department
Spring 2003

	National 2 Yr Avg	Total CSTCC N=645	AdvArts N=6	AAT N=2	Acct N=13	ASLS N=2	Eng N=24	ECED N=23	HumanSvc N=32	Insy N=31	OffSys N=13
Total Score	443	443	446	459	445	439	442	437	449	447	441
Humanities	114.3	115	116	116	116	115	115	114	117	116	114
Social Science	113.7	113	118	118	113	111	113	112	117	114	114
Natural Science	115.9	115	121	119	115	112	116	112	120	117	113
Reading	118.3	118	113	131	117	116	119	116	122	120	118
Writing	115	114	115	120	114	111	114	114	111	116	115
Critical Thinking	110.8	111	112	115	113	109	111	109	116	112	110
Math	113.2	113	112	117	114	116	115	111	116	114	112

	National 2 Yr Avg	Total CSTCC N=645	DHY N=18	Nursing N=83	PT N=19	RC N=8	RT N=19	Mgt N=30	LAT N=20	Transfer N=299
Total Score	443	443	445	438	440	438	445	446	447	444
Humanities	114.3	115	117	114	113	113	115	117	117	115
Social Science	113.7	113	114	113	114	110	115	114	114	114
Natural Science	115.9	115	116	114	116	114	116	116	116	116
Reading	118.3	118	119	117	118	115	120	119	120	119
Writing	115	114	115	114	113	114	116	115	117	114
Critical Thinking	110.8	111	112	110	111	110	112	113	111	112
Math	113.2	113	113	112	113	112	112	113	112	113

Table IV
Student Attitude/Perception Questions

1. How satisfied are you with the educational experience you have had at CSTCC?	2002 2003	Very Dis. 5.2% 4.3%	Dissatisfied 1.9% 2.1%	Satisfied 54.9% 57.1%	Very Satis 38.1% 36.5%
2. If you could start college again, would you enroll at CSTCC?	2002 2003	Very Dis. 4.8% 5.7%	Dissatisfied 5.2% 3.6%	Satisfied 49.2% 49.4%	Very Satis 40.8% 41.3%
3 For the most part , are you a part-time or full-time student?	2002 2003	Part-time 30% 30%	Full-time 70% 70%		
4 Do you plan to transfer to a four-year university upon completion of your coursework at CSTCC?	2002 2003	Yes 58.3% 58%	No 18.7% 21%	NotDec 23.1% 21%	
5 Do you think that you have developed a relationship with one or more faculty members such that you could ask them for a letter of recommendation?	2002 2003	Yes 86.7% 84.5%	No 8.5% 9.0%	No Opin 4.8% 6.6%	
6 Do you feel that you have obtained practical skills necessary to obtain employment in your field while attending CSTCC?	2002 2003	Very Much 51.1% 52.2%	Somewhat 41.1% 41%	Not Very Much 7.7% 6.9%	
7 I tried very hard to answer all the questions on this exam correctly!	2002 2003	Highly Agree 34% 35.7%	Agree 56.2% 53.4%	Disagree 5.6% 7.2%	Highly Disagree 4.2% 3.6%
8. I did my best work o this exam!	2002 2003	Highly Agree 22.1% 22.9%	Agree 55.1% 52.8%	Disagree 19.3% 19.1%	Highly Disagree 3.5% 5.2%
9 The math questions were too difficult for me!	2002 2003	Highly Agree 1.9% 2.9%	Agree 16.2% 20.2%	Disagree 65.4% 59.7%	Highly Disagree 16.4% 17.1%
10. The grammar sections were too difficult for me!	2002 2003	Highly Agree 2.5% 3.8%	Agree 12% 14.7%	Disagree 66.2% 61.6%	Highly Disagree 19.3% 19.9%
11. The reading sections were above my comprehensive level!	2002 2003	Highly Agree 3.1% 45.1%	Agree 15.3% 46.5%	Disagree 58% 3.0%	Highly Disagree 23.6% 5.4%
12. I would recommend CSTCC to others who would like to attend college.	2002 2003	Highly Agree 49.8% 50.1%	Agree 42.6% 41.7%	Disagree 1.9% 3.0%	Highly Disagree 5.6% 5.2%